

O.C. Fisher Reservoir

2020 Fisheries Management Survey Report

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-221-M-4

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

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Survey and Management Summary

Fish populations in O.C. Fisher Reservoir were surveyed in 2020 using electrofishing and trap netting and in 2021 using gill netting and tandem hoop netting. Historical data are presented with the 2020-2021 data for comparison. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

Reservoir Description: O.C. Fisher Reservoir is a 5,440-acre reservoir at conservation pool elevation and is located on the west side of San Angelo, Texas. Access to the reservoir is controlled by San Angelo State Park which surrounds most of the lake basin. The reservoir has a history of severe water level fluctuations. The reservoir went completely dry in 2013 and has not been above 50% capacity since 1988.

Management History: Important sport fishes have included Largemouth Bass, White Crappie, White Bass, and catfishes. Most management actions have revolved around stocking fishes to rebuild populations following droughts and fish kills. Sport fishes have been managed with statewide regulations.

Fish Community

- **Prey species:** Threadfin Shad were present in the reservoir. Electrofishing catch of Gizzard Shad declined from past surveys, but IOV's remained high. Electrofishing catch of Bluegill was moderate and few Bluegill were over 6-inches long.
- **Catfishes:** The Blue and Channel Catfish population continued to show improvement in abundance and size structure following stockings. No Flathead Catfish were collected in the most recent survey.
- **Temperate basses:** White Bass were present in the reservoir with the highest gill net catch rate on record.
- **Largemouth Bass:** The abundance of Largemouth Bass has continued to improve. Largemouth Bass had good growth (age at 14 inches long was 2.0 years). Florida alleles composed 64% of the bass populations genetic makeup and nearly one-quarter were pure Florida Bass.
- **White Crappie:** White Crappie were abundant with many legal-size fish available to anglers. White Crappie growth was fast, most reached legal size in 1.4 years.

Management Strategies: Continue to manage fish harvest with statewide regulations. Conduct electrofishing and trap netting in 2022 and 2024. Conduct gill net survey in 2025. Access and vegetation surveys will be conducted in 2024.

Introduction

This document is a summary of fisheries data collected from O.C. Fisher Reservoir from 2020-2021. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. While information on other fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2020-2021 data for comparison.

Reservoir Description

O. C. Fisher Reservoir was constructed in 1953 on the North Concho River on the west side of San Angelo, Texas. The 5,440-acre impoundment is used for recreation, municipal water supply and irrigation. Access to the reservoir is controlled by San Angelo State Park which surrounds most of the lake basin. Historically, O. C. Fisher Reservoir has suffered from low and fluctuating water levels. Low water levels (1.3% capacity) in 2004 caused a dissolved oxygen crash that resulted in a fish kill that severely impacted sportfish populations. The lowest period in recent years was from 2011-2015 when reservoir capacity never exceeded 3% or 500 surface acres (Figure 1). During this period of extreme drought, the reservoir spent 420 days at or below dead pool elevation. Spring rains in May 2015 brought the reservoir up to 13% capacity and since then the reservoir has ranged from 700 to 1,500 surface acres, averaging about 1,068 acres. O.C. Fisher Reservoir is listed as hypereutrophic by the Texas Commission of Environmental Quality (2019) with a chlorophyll-a trophic state index of 84.48. Other descriptive characteristics for O. C. Fisher Reservoir are presented in Table 1.

Angler Access

Angler access is controlled through the South Gate of San Angelo State Park (entry fee required). At conservation pool, the reservoir has two concrete boat ramps (Lakeview and Red Arroyo ramps) and ample shoreline access. The Lakeview ramp is currently the only usable ramp (Table 2).

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Wright 2017) included:

1. Monitor the recovery of sportfish populations through electrofishing, trap netting, gill netting, and hoop netting, and low-frequency electrofishing (LFE). Stock Largemouth Bass in 2018, conduct management stocking of White Crappie if necessary.

Action: All surveys except LFE was completed as planned. Blue Catfish were successfully sampled during gill netting and LFE sampling was not needed. Largemouth Bass and Blue Catfish fingerlings were stocked in 2018. The White Crappie population improved on natural reproduction and a management stocking was not conducted. A Largemouth Bass genetics sample was collected in 2020.
2. Cooperate with the San Angelo State Park to post signage, educate the public about invasive species, and track existing and future inter-basin water transfers to facilitate potential invasive species responses.

Action: The San Angelo District continued to work with the San Angelo State Park to post signage and to educate the public on invasive species threats through media outlets.

Harvest regulation history: Sport fishes in O.C. Fisher Reservoir are managed with statewide harvest regulations (Table 3).

Stocking history: Species stocked have included Threadfin and Gizzard Shad, Blue Catfish, Channel Catfish, Flathead Catfish, Florida and Northern Largemouth Bass, and various sunfishes. Walleye stockings were discontinued after 1990 as a fishery failed to develop. The complete stocking history is in Table 4.

Vegetation/habitat management history: The reservoir has no significant habitat management history.

Water transfer: No interbasin water transfers are known to exist.

Methods

Surveys were conducted to achieve survey and sampling objectives in accordance with the objective-based sampling (OBS) plan for O.C. Fisher Reservoir (Wright 2017). Primary components of the OBS plan are listed in Table 5. All survey sites were randomly selected, and all surveys were conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Electrofishing – Largemouth Bass, sunfishes, Gizzard Shad, and Threadfin Shad were collected by electrofishing (1.2 hours at 14, 5-min stations). Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing. Ages for Largemouth Bass were determined using otoliths from 10 randomly selected fish (range 13.0 to 14.9 inches).

Trap netting – Crappie were collected using trap nets (10 net nights at 10 stations). CPUE for trap netting was recorded as the number of fish caught per net night (fish/nn). Ages for crappie were determined using otoliths from 15 randomly selected fish (range 9.0 to 10.9 inches).

Gill netting – Blue Catfish, Channel Catfish, and White Bass were collected by gill netting (10 net nights at 10 stations). CPUE for gill netting was recorded as the number of fish caught per net night (fish/nn).

Tandem hoop nets – Channel Catfish were collected using 10 tandem hoop-net series at 10 stations. Nets were baited with soap and deployed for 2-night soak durations. CPUE for tandem hoop netting was recorded as the number of fish caught per tandem hoop net series (fish/series).

Genetics – Genetic analysis of Largemouth Bass was conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2017). Micro-satellite DNA analysis was used to determine genetic composition of individual fish since 2005. Electrophoresis analysis was used prior to 2005.

Statistics – Sampling statistics (CPUE for various length categories), structural indices [Proportional Size Distribution (PSD), terminology modified by Guy et al. 2007], and condition indices [relative weight (W_r)] were calculated for target fishes according to Anderson and Neumann (1996). Index of Vulnerability (IOV) was calculated for Gizzard Shad (DiCenzo et al. 1996). Standard error (SE) was calculated for structural indices and IOV. Relative standard error (RSE = 100 X SE of the estimate/estimate) was calculated for all CPUE and creel statistics.

Habitat – The most recent structural habitat survey was conducted in 2008. A vegetation survey was conducted in 2020. Habitat was assessed with the digital shapefile method (TPWD, Inland Fisheries Division, unpublished manual revised 2017).

Water level – Source for water level data was the United States Geological Survey (USGS 2021).

Results and Discussion

Habitat: No aquatic vegetation was observed in 2020 which was similar to past surveys (Table 6) as O.C. Fisher Reservoir rarely supports aquatic vegetation. Structural habitat was present in the form of flooded salt-cedars and willows. The last structural habitat survey in 2008 reported a mix of rocky and nondescript natural shoreline (Scott and Farooqi 2009) and conditions have changed very little since then.

Prey species: Electrofishing catch rates of Gizzard Shad have declined from 617.0/h in 2016 to 174.0/h in 2020. Index of Vulnerability (IOV) for Gizzard Shad was excellent with > 90% of Gizzard Shad available to existing predators over the past three surveys (Figure 2). Total CPUE of Bluegill was 126.9/h in 2020,

which was higher than total CPUE from surveys in 2018, but lower than 2016. Size structure was slightly higher in 2020 when compared to previous years (Figure 3). Green and Longear Sunfish were also present in the reservoir (Appendix A). Given the excellent IOV's for Gizzard Shad and the fact that almost all sportfish have relative weights near or above 100, we conclude the forage base in O.C. Fisher Reservoir is of high quality and more than adequate to support existing sportfish populations.

Blue Catfish: No Blue Catfish were collected during spring gill netting in 2017, suggesting few, if any, survived the drought from 2011-2015. A total of 186,429 fingerling Blue Catfish were stocked in O.C. Fisher from 2016-2018 to rebuild the population. Stockings appear to have been successful as the total catch rate was 5.4/nn in 2021 (Figure 4). Condition of Blue Catfish was excellent as most inch groups had relative weights over 100 (Figure 4). Many legal-size fish were present; the most common size was 15 inches and fish up to 25 inches were sampled.

Channel Catfish: The gill net catch rate of Channel Catfish improved from 1.6/nn in 2017 to 4.1/nn in 2021. Over 75,000 fingerlings were stocked in 2016 and based on improvements in abundance from 2017 to 2021 the stockings appear to have been successful. Relative weights were excellent with most inch groups from 100-120 (Figure 5). Size structure has also improved as the stocked catfish grow into larger size classes. In 2017 the largest Channel Catfish collected was 16 inches, however in 2021, many Channel Catfish over 20 inches were collected with the largest being 27 inches. Tandem hoop net catch rate of Channel Catfish was 12.1 fish/net series in 2021, which was much higher than 0.6 fish/net series in 2019 (Figure 6).

White Bass: The gill net catch rate of White Bass was 10.1/nn in 2021, highest on record for O.C. Fisher (Figure 7). Size structure was excellent, the most common size White Bass was 12 inches with fish up to 16 inches collected. Condition of White Bass was good as relative weights were near 100 for most inch groups.

Largemouth Bass: The total electrofishing catch rate of Largemouth Bass has improved over the past three surveys, increasing from 58.0/h in 2016 to 94.4/h in 2020 (Figure 8). The catch rate of Largemouth Bass over 14 inches has also increased over the past three surveys. Size structure was marginal as PSD was 32 and PSD-P was 11, indicating only about 11% of all catchable size bass were over 15 inches (Figure 8). Growth of Largemouth Bass was good; average age at 14 inches (13.0 to 14.9 inches) was 2.0 years (N = 10; all age 2). Body condition in 2020 was generally adequate with relative weights of 90-100 for most inch groups (Figure 8). Composition of Florida alleles in the Largemouth Bass population was 64.0% in 2020 and approximately one-quarter (26.6%) of all Largemouth Bass were pure Florida strain bass (Table 7).

White Crappie: The total trap net catch rate of White Crappie was 8.3/nn in 2020, lower than in 2018 (21.1/nn) but higher than 2016 (1.6/nn). Catch rates in 2016 were very low due to recovery from drought when the reservoir was dry in 2013. The PSD-P was 27 in 2020 (Figure 9) indicating 27% of all catchable size crappie were over 10 inches in length. Mean relative weight was near 100 for most size classes in 2020 and 2018 (Figure 9). Growth of White Crappie was fast; average age at 10 inches (9.0 to 10.9 inches) was 1.4 years (N = 15; range = 1 – 2 years) in 2020 and 1.0 years (N = 13; all age 1) in 2018. The White Crappie fishery was exceptional in 2018 as evidenced by high trap net catch rates, good size structure, and anecdotal angler reports. However due to falling water levels, White Crappie are getting concentrated and anglers can more efficiently target crappie in the reservoir. The reduction in abundance of legal-size crappie from 2018 to 2020 was possibly due to increased harvest efficiency due to dropping water levels.

Fisheries Management Plan for O.C Fisher Reservoir, Texas

Prepared – July 2021

ISSUE 1: Water levels are a constant issue at O.C. Fisher Reservoir. While sportfish populations have improved due to stockings from 2016-2018 and subsequent natural reproduction, the reservoir water level continues to drop, threatening the sportfish population due to potential dissolved oxygen kills or complete lake drying. At the time of this writing, O.C. Fisher was at 5.9% capacity and 665 surface acres. While reservoir water levels are beyond our control, sportfish populations will need to be monitored to assess the impacts of falling water levels.

MANAGEMENT STRATEGY

1. Survey sportfish populations with electrofishing and trap netting in fall 2022 and 2024, and gill netting in spring 2025.

ISSUE 2: Many invasive species threaten aquatic habitats and organisms in Texas and can adversely affect the state ecologically, environmentally, and economically. For example, zebra mussels can multiply rapidly and attach themselves to any available hard structure, restricting water flow in pipes, fouling swimming beaches, and plugging engine cooling systems. Giant salvinia and other invasive vegetation species can form dense mats, interfering with recreational activities like fishing, boating, skiing, and swimming. The financial costs of controlling and/or eradicating these types of invasive species are significant. Additionally, the potential for invasive species to spread to other river drainages and reservoirs via watercraft and other means is a serious threat to all public waters of the state.

MANAGEMENT STRATEGIES

1. Cooperate with the San Angelo State Park to post appropriate signage at access points around the reservoir.
2. Educate the public about invasive species through the use of media and the internet.
3. Make a speaking point about invasive species when presenting to constituent and user groups.
4. Keep track of (i.e., map) existing and future inter-basin water transfers to facilitate potential invasive species responses.

Objective-Based Sampling Plan and Schedule (2021–2025)

Sport fish, forage fish, and other important fishes

Important sport fishes in O.C. Fisher Reservoir include Largemouth Bass, White Crappie, White Bass, Blue Catfish, and Channel Catfish. Known important forage species include Bluegill and Gizzard Shad.

Low-density fisheries

Flathead Catfish: Flathead Catfish have historically been present in the reservoir, but at low density. Since 2000 only three individuals have been collected during gill net surveys and none were collected in

either 2017 or 2021 gill netting. Sampling this population is unnecessary during 2021-2025, however, length frequency data can be collected when sampling for other species.

Survey objectives, fisheries metrics, and sampling objectives

Largemouth Bass: The Largemouth Bass population has continued to improve following drought conditions in 2011-2015. Collection of biennial trend data in this reservoir using electrofishing in the fall will allow for determination of any large-scale changes in the population that may spur further investigation. A minimum of 12 randomly selected 5-min electrofishing sites will be sampled in fall 2022 and 2024 (Table 8), but sampling will continue at random sites until 50 stock-size fish are collected and the RSE of CPUE-Stock is ≤ 25 . Twelve random stations will be determined. Exclusive of the original 12 random stations, 3 additional random stations will be pre-determined in the event some extra sampling is necessary. A maximum of 15 stations will be sampled. Otoliths from 13 fish between 13.0 and 14.9 inches will be collected to determine mean age at 14 inches.

Blue Catfish: Successful Blue Catfish stockings from 2016-2018 have developed into a growing population. LFE has not been successful in O.C. Fisher Reservoir, thus we will return to sampling Blue Catfish with gill nets every 4 years. Objectives will be to collect trend data on abundance (CPUE-Total RSE ≤ 25) and size structure (50 stock size fish) and fish condition. Ten gill net nights will be run in spring 2025 (Table 8). This should give adequate data to determine any large-scale changes in the population. No additional effort will be expended if sampling objectives are not met in 10 net nights.

Channel Catfish: Channel Catfish abundance has increased since the 2011-2015 drought period. Tandem hoop nets were moderately successful in O.C. Fisher reservoir as a sampling tool in 2021, however with the need to also assess Blue Catfish and White Bass, we will return to sampling Channel Catfish with gill nets every 4 years. Objectives will be to collect data on abundance (CPUE-Total RSE ≤ 25) and size structure (50 stock size fish) and fish condition. Ten gill net nights will be run in spring 2025 (Table 8). This should give adequate data to determine any large-scale changes in the population. No additional effort will be expended if sampling objectives are not met in 10 net nights.

White Crappie: Recent trap net surveys in 2018 and 2020 produced high catch rates of stock size crappie (7.8-19.8.0 fish/nn). Our objectives are to monitor trends in abundance (CPUE-S with an RSE ≤ 25), size structure (50 stock size fish), condition, and growth (Otoliths from 13 fish between 9.0 and 10.9 inches). Ten randomly selected trap net sites will be sampled in 2022 and 2024 (Table 8). Based on past data it is highly likely all objectives will be met in 10 net nights. No additional effort will be expended if sampling objectives are not met after 10 net nights.

White Bass: White Bass were present in O.C. Fisher Reservoir in good abundance in the most recent survey (10.1 fish/nn in 2021). Directed angler effort towards White Bass in O.C. Fisher is unknown, but length and weight data will be collected during gill netting in spring 2025, as per the Blue and Channel Catfish sampling effort, which will allow for the estimation of population abundance and length frequency. No objectives for the precision of abundance or size structure will be made for White Bass in O.C. Fisher Reservoir.

Gizzard Shad and Bluegill: Gizzard Shad and Bluegill are the primary forage fish in O.C. Fisher Reservoir. Sampling effort based on sampling objectives for Largemouth Bass will be sufficient to determine IOV and CPUE-Total of Gizzard Shad and CPUE-Total and size structure of Bluegill. No additional sampling effort will be expended to achieve an RSE ≤ 25 for CPUE-Total for Gizzard Shad or Bluegill.

Literature Cited

- Anderson, R. O., and R. M. Neumann. 1996. Length, weight, and associated structural indices. Pages 447-482 in B. R. Murphy and D. W. Willis, editors. Fisheries techniques, 2nd edition. American Fisheries Society, Bethesda, Maryland.
- DiCenzo, V. J., M. J. Maceina, and M. R. Stimpert. 1996. Relations between reservoir trophic state and Gizzard Shad population characteristics in Alabama reservoirs. North American Journal of Fisheries Management 16:888-895.
- Guy, C. S., R. M. Neumann, D. W. Willis, and R. O. Anderson. 2007. Proportional size distribution (PSD): a further refinement of population size structure index terminology. Fisheries 32(7): 348.
- Scott, M. K and M. Farooqi. 2009. Statewide freshwater fisheries monitoring and management program survey report for O. C. Fisher Reservoir, 2008. Texas Parks and Wildlife Department, Federal Aid Report F-30-R-34, Austin.
- Texas Commission on Environmental Quality. 2019. Trophic classification of Texas reservoirs. 2018 Texas Integrated Report for Clean Water Act Sections 305(b) and 303(d), Austin. 15 pp.
- United States Geological Society (USGS). 2021. National water information system: Web interface. Available: <http://waterdata.usgs.gov/tx/nwis> (April 2021).
- Wright, L. 2017. O.C. Fisher Reservoir, 2016 fisheries management survey report. Texas Parks and Wildlife Department, Federal Aid Report F-221-M-2, Austin.

Tables and Figures

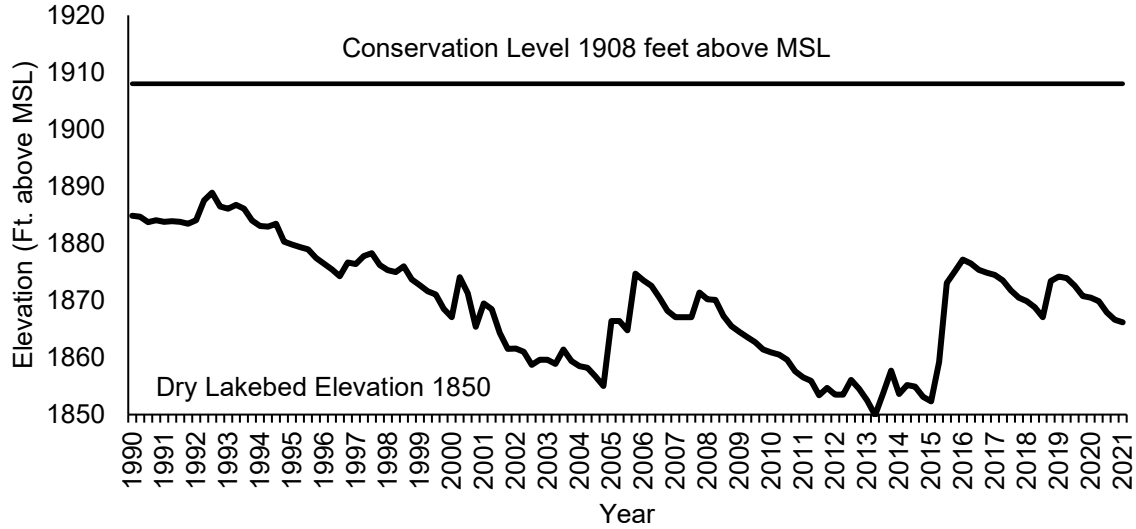


Figure 1. Quarterly water level elevations in feet above mean sea level (MSL) recorded for O.C. Fisher Reservoir, Texas, 1990-2021.

Table 1. Characteristics of O.C Fisher Reservoir, Texas.

Characteristic	Description
Year constructed	1953
Controlling authority	United States Army Corps of Engineers
County	Tom Green
Reservoir type	Tributary of the Concho River
Shoreline Development Index	2.6
Conductivity	702 $\mu\text{S}/\text{cm}$

Table 2. Boat ramp characteristics for O.C. Fisher Reservoir, Texas, August 2020. Reservoir elevation at time of survey was 1,868 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
State Park South – Lakeview Ramp	31.47911 -100.4848	Y	15	1860	Good. Extension not feasible.
State Park South – Red Arroyo Ramp	31.47649 -100.4950	Y	12	1872	Out of Water. Extension not feasible.

Table 3. Harvest regulations for O.C. Fisher Reservoir, Texas.

Species	Bag limit	Length limit
Catfish: Channel and Blue Catfish, their hybrids and subspecies	25 (in any combination)	12-inch minimum
Catfish, Flathead	5	18-inch minimum
Bass, White	25	10-inch minimum
Bass, Largemouth	5	14-inch minimum
Crappie: White and Black crappie, their hybrids and subspecies	25 (in any combination)	10-inch minimum

Table 4. Stocking history of O.C. Fisher Reservoir, Texas. FGL = fingerling; FRY = Fry; ADL = adults; UNK = Unknown.

Species	Year(s) Stocked	Number of Years	Number Stocked	Size
Threadfin Shad	1984	1	8,500	UNK
Gizzard Shad	2005	1	160	ADL
Blue Catfish	1971-1982	5	59,087	UNK
	2005-2017	4	325,204	FGL
	2018	1	48,821	FGL
Channel Catfish	1966-1980	5	245,634	UNK
	1987-2016	5	554,155	FGL
Flathead Catfish	1971	1	3,000	UNK
Warmouth	1969	1	38,000	UNK
Bluegill	2005-2017	3	203,952	FGL
Redear Sunfish	1970-1971	2	17,040	UNK
Largemouth Bass	1966-1973	7	436,510	UNK
	2016	1	114	ADL
White Crappie	1969-1972	2	17,000	UNK
	2005-2015	2	516	ADL
Florida Largemouth Bass	1987-2016	5	553,938	FGL
	2018	1	62,872	FGL
	2019	1	25,474	FGL
Walleye	1968-1983	7	13,133,650	UNK
	1989-1990	2	9,749,850	FRY
Kemp's Largemouth Bass	1974	1	4,500	FGL
Green X Redear Sunfish	1969-1974	2	140,000	UNK

Table 5. Objective-based sampling plan components for O.C. Fisher Reservoir, Texas 2020–2021.

Gear/target species	Survey objective	Metrics	Sampling objective
<i>Electrofishing</i>			
Largemouth Bass	Abundance	CPUE–Stock	RSE-Stock \leq 25
	Size structure	PSD, length frequency	N \geq 50 stock
	Age-and-growth	Age at 14 inches	N = 13, 13.0 – 14.9 inches
	Condition	W_r	10 fish/inch group (max)
	Genetics	% FLMB	N = 30, any age
Bluegill ^a	Abundance	CPUE–Total	RSE \leq 25
	Size structure	PSD, length frequency	N \geq 50
Gizzard Shad ^a	Abundance	CPUE–Total	RSE \leq 25
	Size structure	PSD, length frequency	N \geq 50
	Prey availability	IOV	N \geq 50
<i>Trap netting</i>			
Crappie	Abundance	CPUE–Stock	RSE-Stock \leq 25
	Size structure	PSD, length frequency	N = 50
	Age-and-growth	Age at 10 inches	N = 13, 9.0 – 10.9 inches
<i>Tandem hoop netting</i>			
Channel Catfish	Abundance	CPUE–stock	RSE-Stock \leq 25
	Size structure	PSD, length frequency	N \geq 100 stock

^a No additional effort will be expended to achieve an RSE \leq 25 for CPUE of Bluegill and Gizzard Shad if not reached from designated Largemouth Bass sampling effort. Instead, Largemouth Bass body condition can provide information on forage abundance, vulnerability, or both relative to predator density.

Table 6. Survey of aquatic vegetation, O.C. Fisher Reservoir, Texas, 2008, 2016, and 2020. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

Vegetation	2008	2016	2020
Surface acres during survey	722	1310	790
Native submersed	0.0 (0.0)	1.0 (< 1.0)	0.0 (0.0)
Native floating-leaved	0.0 (0.0)	1.0 (< 1.0)	0.0 (0.0)
Native emergent	0.0 (0.0)	< 1.0 (< 1.0)	0.0 (0.0)

Gizzard Shad

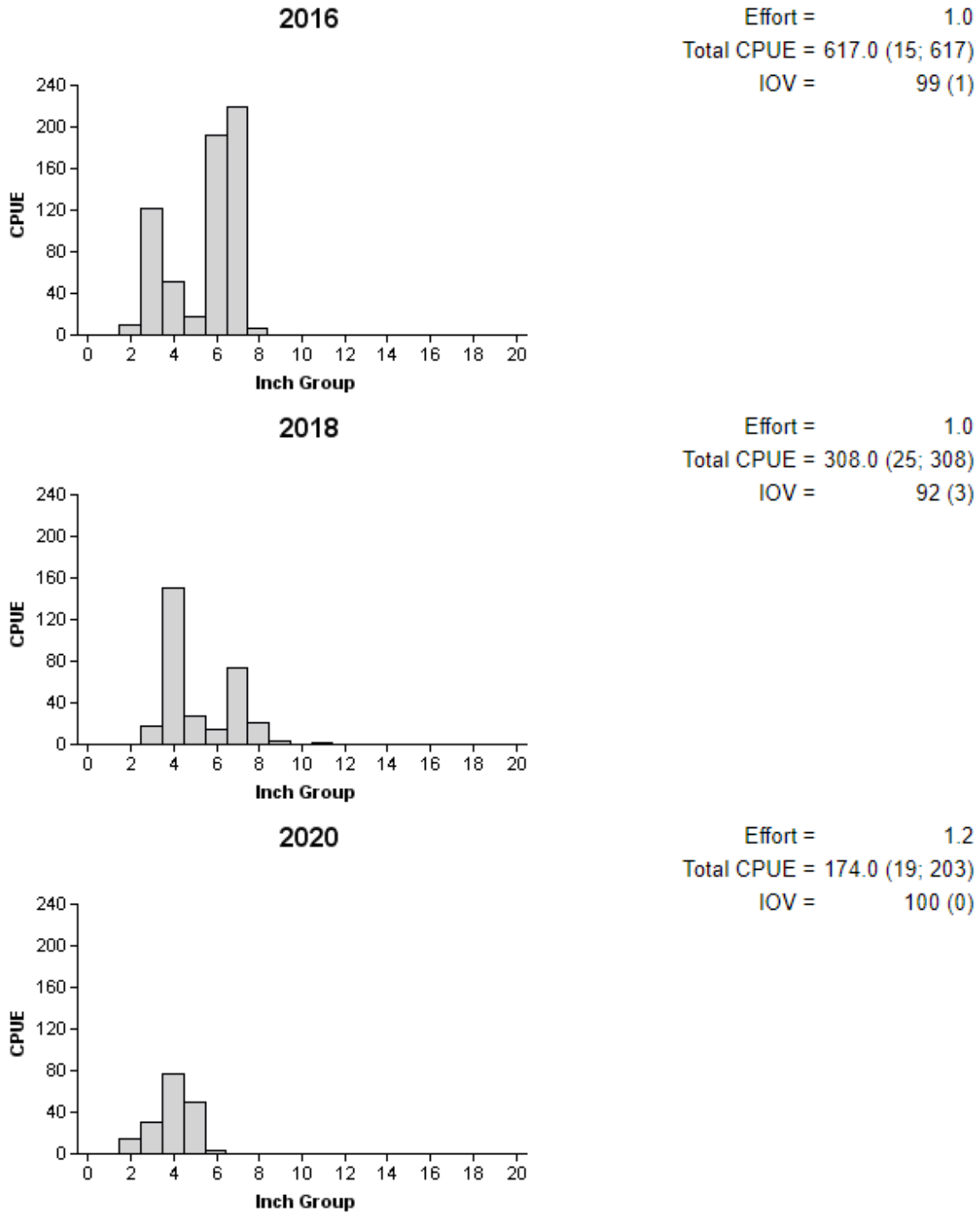


Figure 2. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, O.C Fisher Reservoir, Texas, 2016, 2018, and 2020.

Bluegill

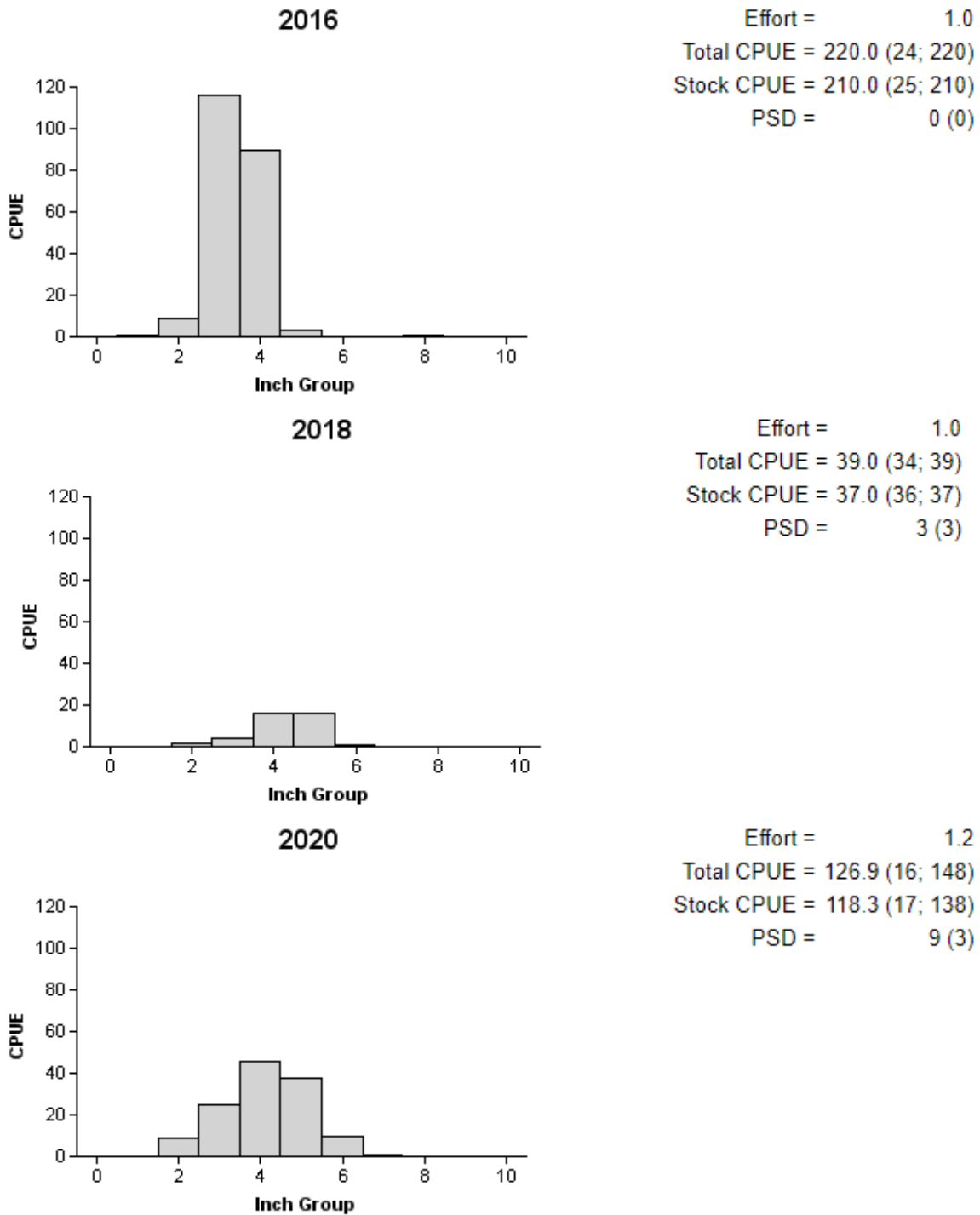


Figure 3. Number of Bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, O.C. Fisher Reservoir, Texas, 2016, 2018, and 2020.

Blue Catfish

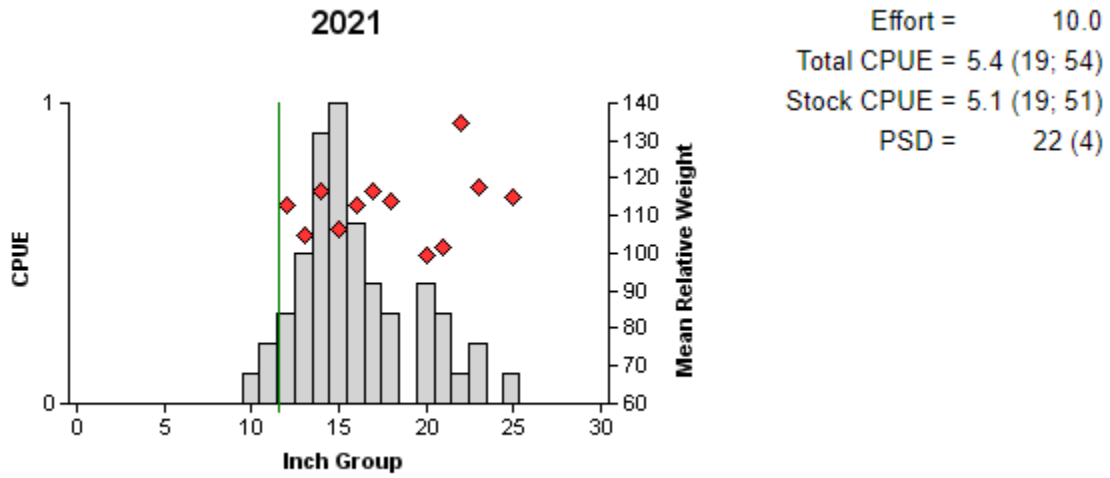


Figure 4. Number of Blue Catfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, O.C. Fisher Reservoir, Texas, 2021. Vertical line indicates minimum length limit.

Channel Catfish

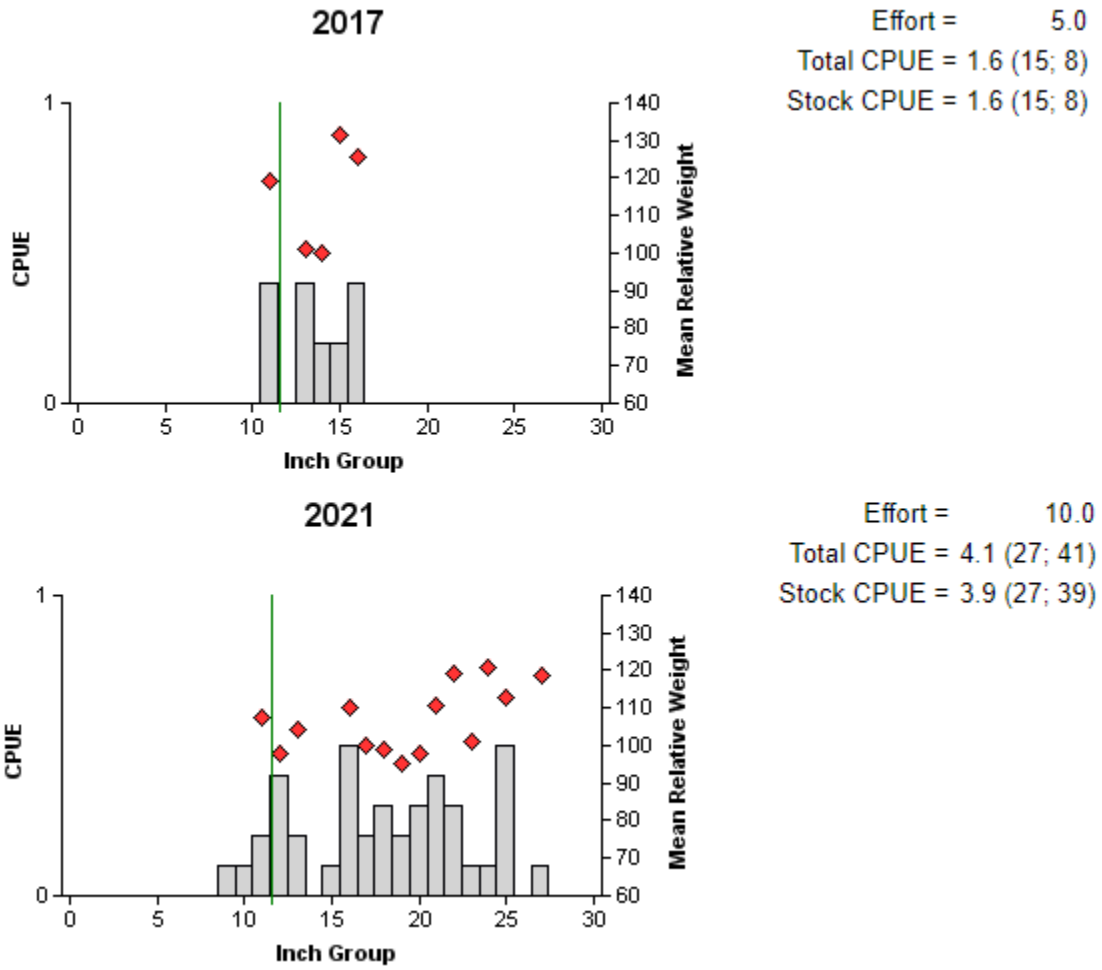


Figure 5. Number of Channel Catfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, O.C. Fisher Reservoir, Texas, 2017 and 2021. Vertical line indicates minimum length limit.

Channel Catfish

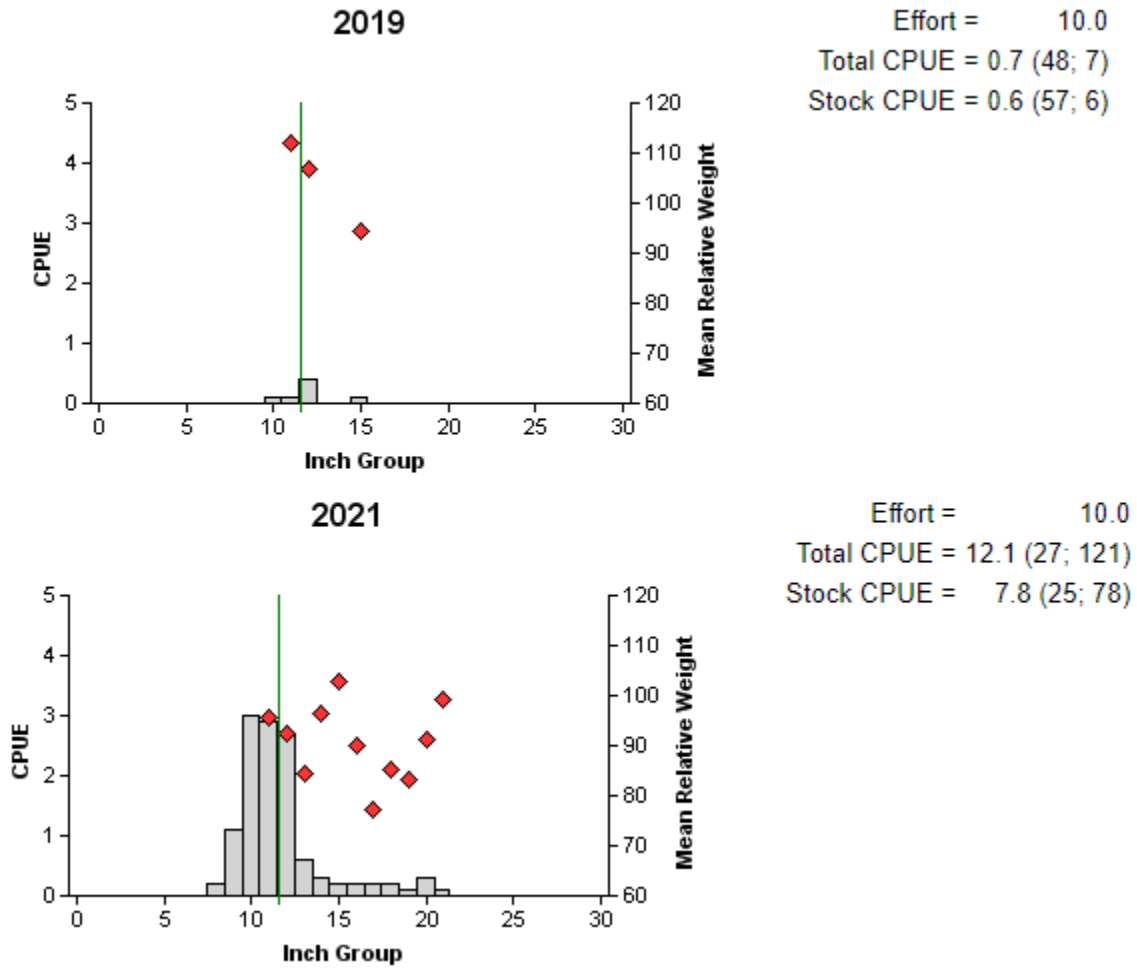


Figure 6. Number of Channel Catfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring tandem hoop net surveys, O.C. Fisher Reservoir, Texas, 2019 and 2021. Vertical line indicates minimum length limit.

White Bass

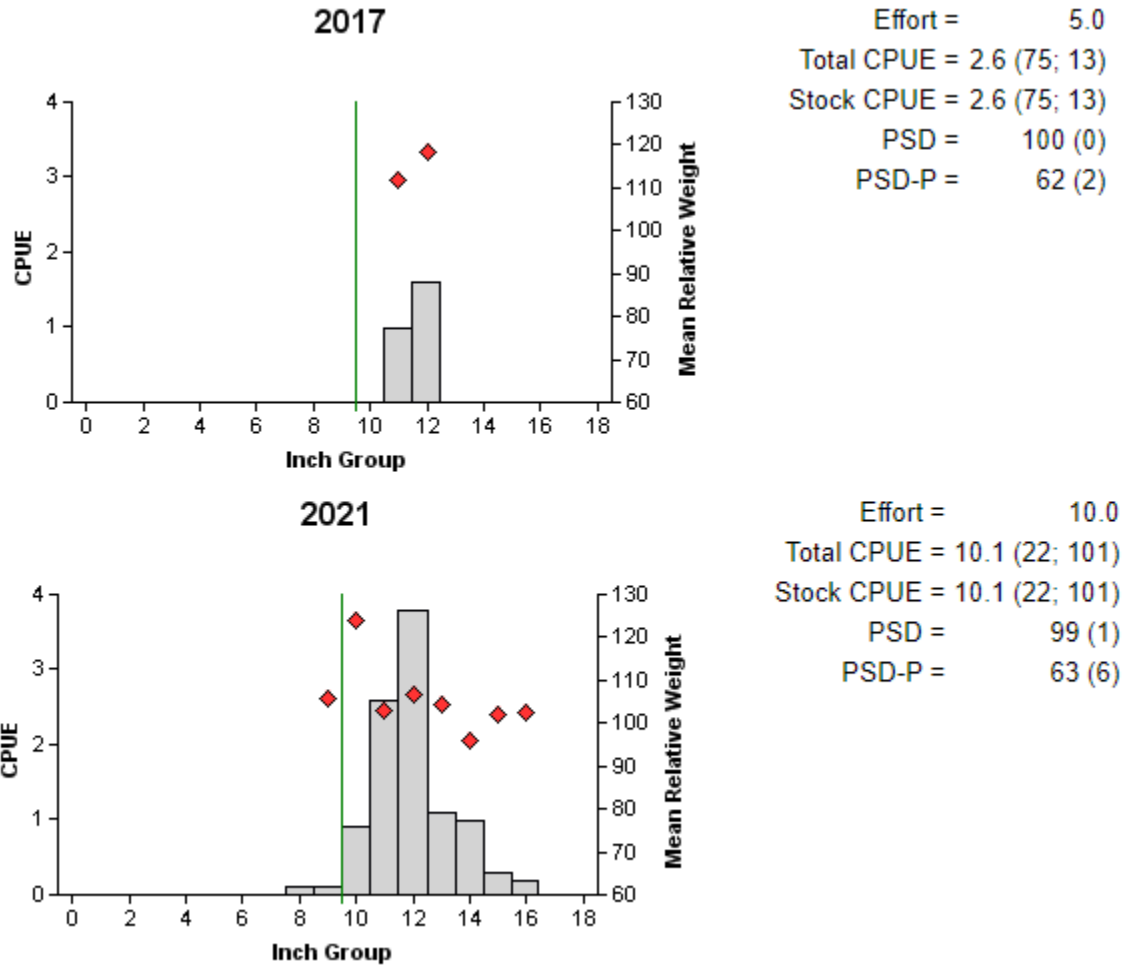


Figure 7. Number of White Bass caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, O.C. Fisher Reservoir, Texas, 2017 and 2021. Vertical line indicates minimum length limit.

Largemouth Bass

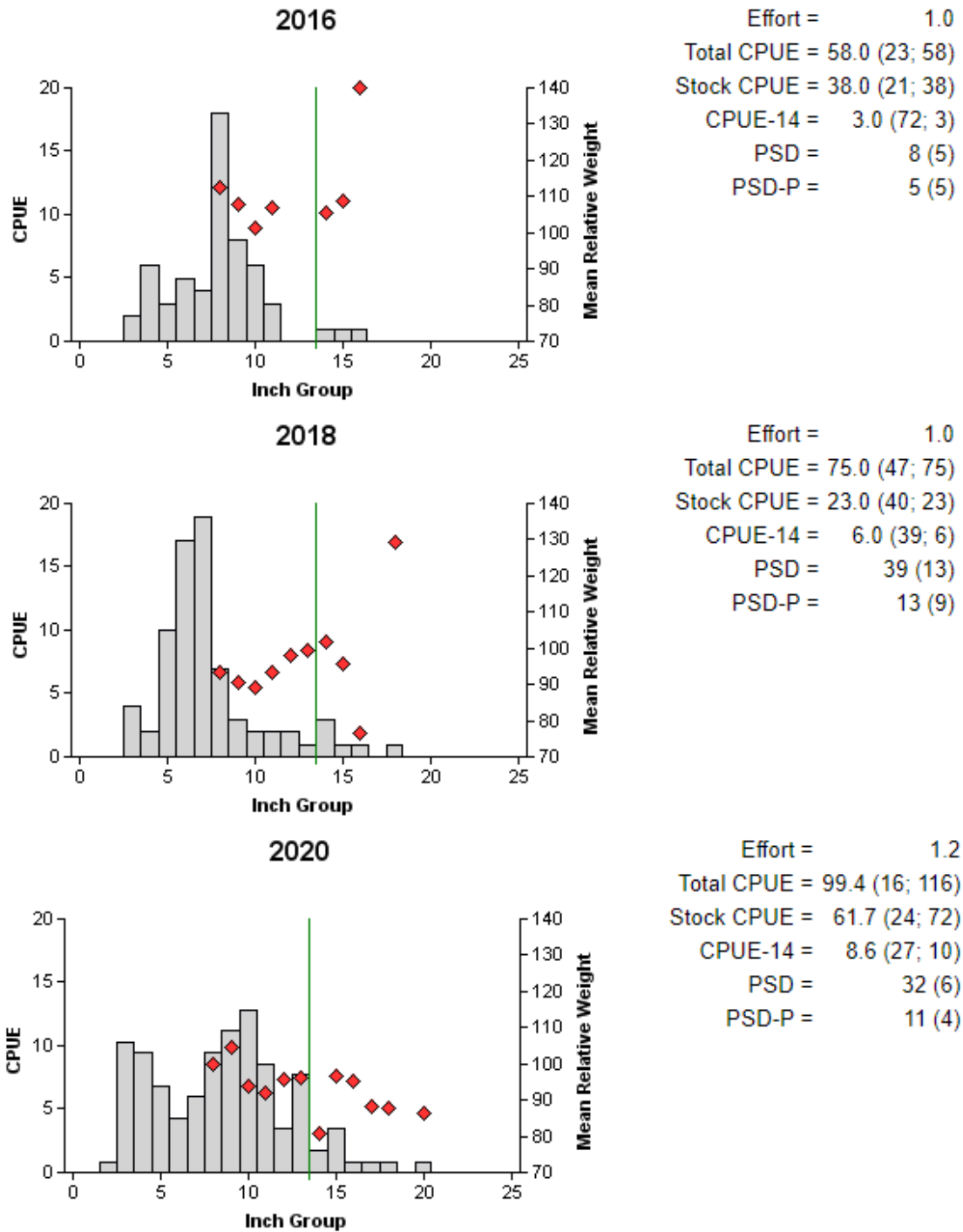
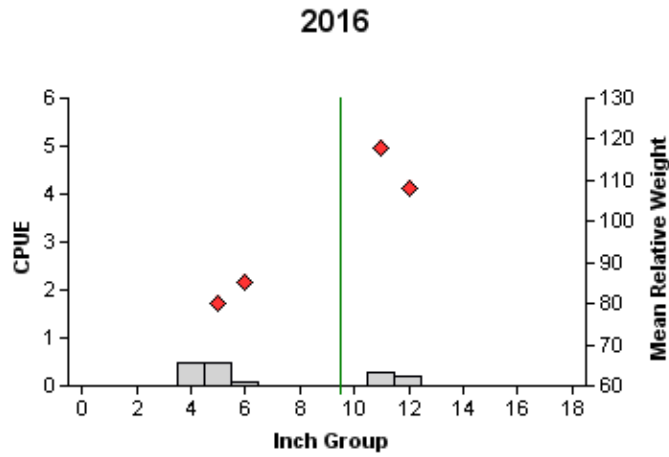


Figure 8. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, O.C. Fisher Reservoir, Texas, 2016, 2018, and 2020. Vertical line indicates minimum length limit.

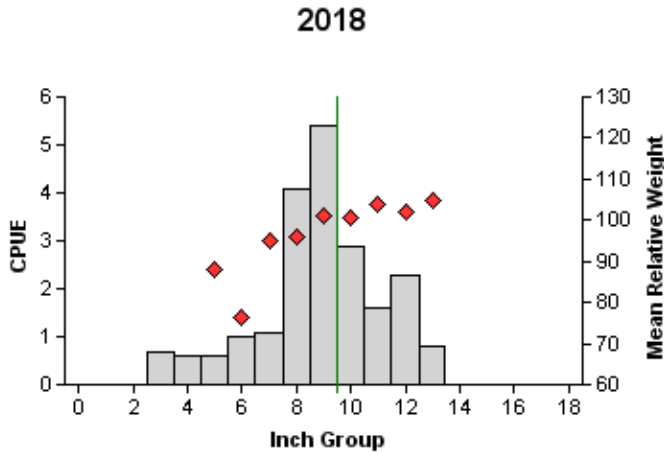
Table 7. Results of genetic analysis of Largemouth Bass collected by fall electrofishing, O.C. Fisher Reservoir, Texas, 1996, 1999, 2000, and 2020. FLMB = Florida Largemouth Bass, NLMB = Northern Largemouth Bass, Intergrade = hybrid between a FLMB and a NLMB. Genetic composition was determined by electrophoresis prior to 2005 and with micro-satellite DNA analysis since 2005.

Year	Sample size	Number of fish			% FLMB alleles	% FLMB
		FLMB	Intergrade	NLMB		
1996	61	52	7	2	89.5	85.2
1999	11	3	8	0	65.9	27.3
2000	15	-	-	-	70.0	-
2020	30	8	20	2	64.0	26.6

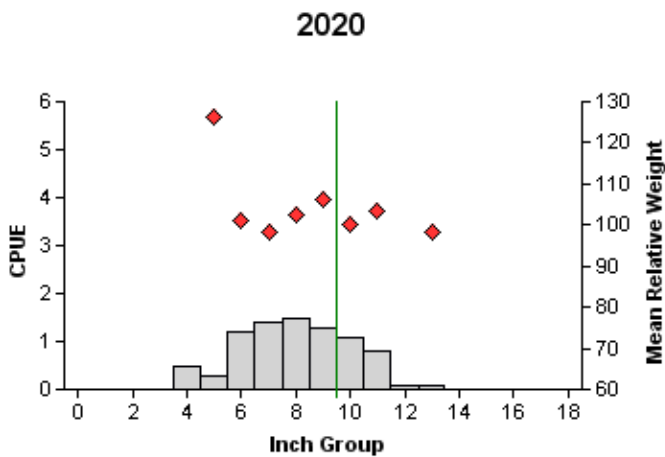
White Crappie



Effort = 10.0
 Total CPUE = 1.6 (30; 16)
 Stock CPUE = 1.1 (29; 11)
 PSD = 45 (14)
 PSD-P = 45 (14)



Effort = 10.0
 Total CPUE = 21.1 (42; 211)
 Stock CPUE = 19.8 (42; 198)
 PSD = 86 (5)
 PSD-P = 38 (11)



Effort = 10.0
 Total CPUE = 8.3 (20; 83)
 Stock CPUE = 7.8 (18; 78)
 PSD = 63 (5)
 PSD-P = 27 (4)

Figure 9. Number of White Crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap netting surveys, O.C. Fisher Reservoir, Texas, 2016, 2018, and 2020. Vertical line indicates minimum length limit.

Proposed Sampling Schedule

Table 8. Proposed sampling schedule for O.C. Fisher Reservoir, Texas. Survey period is June through May. Gill netting surveys are conducted in the spring, while electrofishing and trap netting surveys are conducted in the fall.

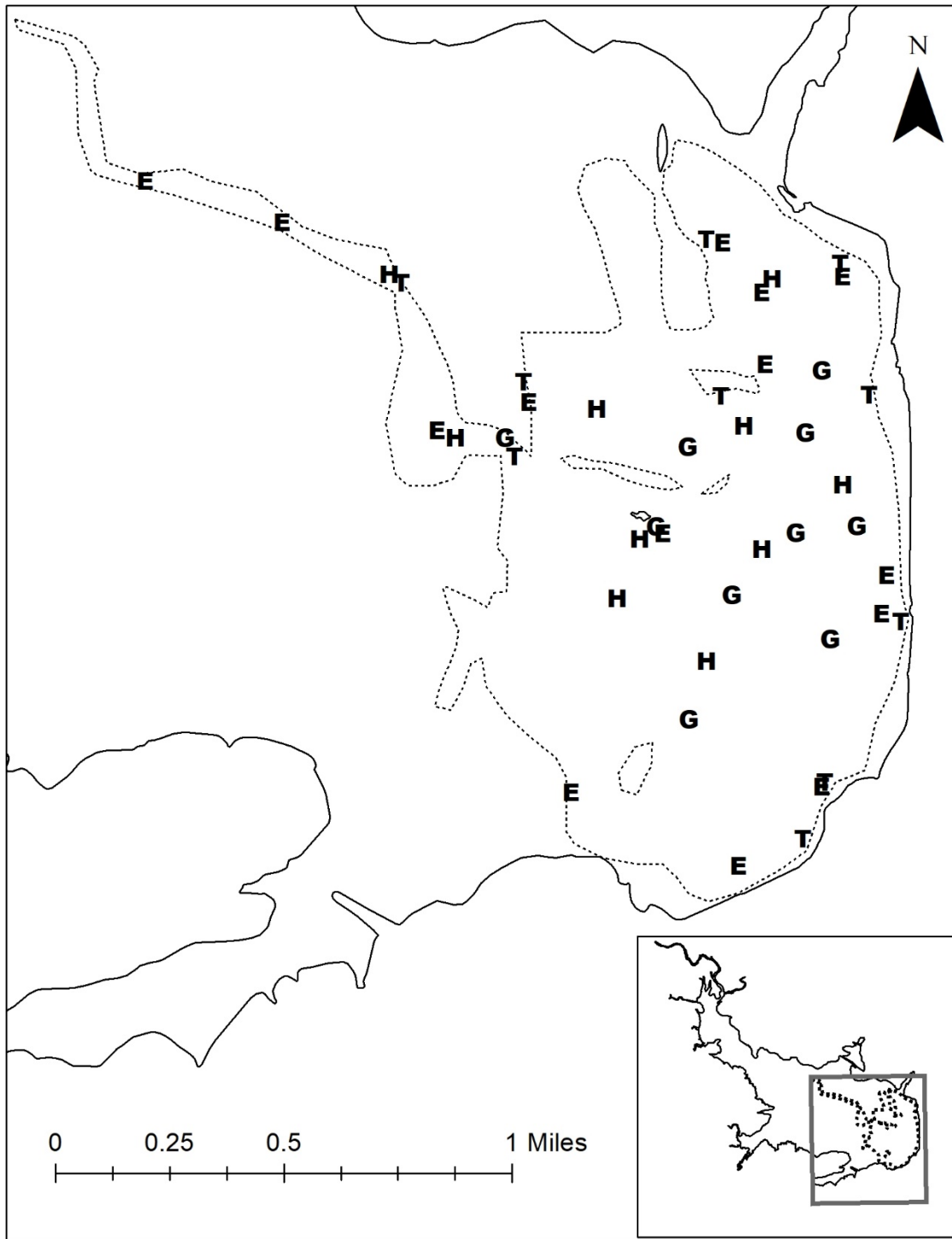
	Survey year			
	2021-2022	2022-2023	2023-2024	2024-2025
Angler Access				X
Structural Habitat				
Vegetation				X
Electrofishing – Fall		X		X
Trap netting		X		X
Gill netting				X
Baited tandem hoop netting				
Creel survey				
Report				X

APPENDIX A – Catch rates for all species from all gear types

Number (N) and catch rate (CPUE) (RSE in parentheses) of all target species collected from all gear types from O.C. Fisher Reservoir, Texas, 2020-2021. Sampling effort was 10 net nights for gill netting, 10 net nights for trap netting, 10 net series for hoop netting, and 1.2 hours for electrofishing.

Species	Gill Netting		Trap Netting		Hoop Netting		Electrofishing	
	N	CPUE	N	CPUE	N	CPUE	N	CPUE
Gizzard Shad							203	174.0 (19)
Threadfin Shad							25	21.4 (41)
Blue Catfish	54	5.4 (19)						
Channel Catfish	41	4.1 (27)			121	12.1 (27)		
White Bass	101	10.1 (22)						
Green Sunfish							22	18.9 (32)
Bluegill							148	126.9 (16)
Longear Sunfish							8	6.9 (44)
Largemouth Bass							116	99.4 (16)
White Crappie			83	8.3 (20)				

APPENDIX B – Map of sampling locations



Location of sampling sites, O.C. Fisher Reservoir, Texas, 2020-2021. Trap net, gill net, tandem hoop net, and electrofishing stations are indicated by T, G, H, and E, respectively. Water level was approx. 42 feet below conservation pool at time of sampling. Dashed line indicates approx. location of shoreline during sampling.



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